

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellants:	Dekkers, et al.	)	
		)	Group Art Unit: 1713
Serial No.:	10/798,183	)	
		)	
Filed:	March 11, 2004	)	Examiner: William K. Cheung
		)	
For:	BIOCIDAL COMPOSITIONS	)	
	AND METHODS OF MAKING	)	
	THEREOF	)	

**VIA ELECTRONIC FILING**

Assistant Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is The General Electric Company.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences known to Appellants, Appellants' legal representatives, or assignee that will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

**III. STATUS OF THE CLAIMS**

Claims 1, 2, and 4-22 are pending in the application. Claims 1, 2, and 4-19 stand finally rejected, Claims 20-22 stand withdrawn, and no claims are allowed. Claims 1, 2, and 4-19, as they currently stand, are set forth in Appendix A. Appellants hereby appeal the final rejection of Claims 1, 2, and 4-19.

**IV. STATUS OF THE AMENDMENTS**

No amendments have been filed subsequent to the final rejection dated July 28, 2006. All prior amendments have been entered.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 1 is directed to an article comprises a thermoplastic composition comprising a thermoplastic resin (§ [0017]) and an inorganic biocidal agent (§ [0023]), wherein the thermoplastic resin comprises a homopolymer or copolymer of a polycarbonate, a polyester, a polyacrylate, a polyamide, a polyetherimide, a polyphenylene ether, or a combination comprising one or more of the foregoing resins (§ [0038]), wherein the article has a biocidal metal release factor of greater than 2.5 from an exterior surface. (§ [0010]) The biocidal metal release in parts per billion is measured by contacting 5 cm by 5 cm of the exterior surface with 40 milliliters of 0.8% weight/volume of sodium nitrate for 24 hours at 25°C to form a test solution, and measuring the amount of biocidal metal in the test solution in parts per billion. (§ [0012]) The biocidal metal release factor is the amount of biocidal metal in the test solution in parts per billion divided by a product of a weight percent of the inorganic biocidal agent based on the total

weight of the article and the weight percent of biocidal metal in the inorganic biocidal agent. (¶¶ [0013], [0014])

Appellants have discovered that, unexpectedly, an article that comprises a textured exterior surface has superior biocidal activity over an article that comprises a smooth, non-textured surface. As disclosed in the Examples of the present Application, the textured exterior surface improves the biocidal metal release properties of the article. (¶¶ [0098]-[0106]; Tables 2, 5, and 6)

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1, 2, and 4-19 stand rejected under 35 U.S.C. § 102(b), as anticipated by, or in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 6,365,066 to Podszun, et al. (“Podszun”).

## **VII. ARGUMENT**

Claims 1, 2, and 4-19 are not anticipated by nor rendered obvious by Podszun.

The present invention relates to an article comprising a textured exterior surface that provides effective release of an inorganic biocidal agent. (¶¶ [0005], [0006]) Appellants discovered that an article comprising a textured exterior surface exhibits unexpectedly superior inorganic biocidal agent release properties over articles comprising a smooth, non-textured surface. As disclosed in the Examples of the present Application, the textured exterior surface improves the biocidal metal release properties of the article. (¶¶ [0098]-[0106]; Tables 2, 5, and 6) Claims 1, 2, 4, and 5 of the present Application are further directed to an article comprising an inorganic biocidal agent wherein the article has a biocidal metal release factor greater than 2.5. The textured surface of the presently claimed article can therefore advantageously increase the release of biocidal metals, leading to a dramatic decrease in the growth of pathogenic organisms.

The article of the present application is modified by texturizing an exterior surface to provide the claimed textured exterior surface, which, results in the claimed biocidal metal release properties. (¶ [0017]) The unmodified (i.e., non-textured) surface corresponds to the Examples of the present Application, which are labeled “As such.” The Examples disclose using light friction to provide textured articles that had roughly a 10-fold greater average roughness than the

“As such” samples. (¶ [0098]; Table 2) The textured articles provide increased biocidal metal release as compared to the “As such” samples. Samples B, C, E, and F all show significantly increased silver release when the surfaces are texturized. (¶ [0099]; Table 2) As shown in Table 6 of the Application, the textured surfaces exhibit high biocidal efficacy indicating effective biocidal metal release properties. Even a small increase in biocidal metal release results in a large improvement in biocidal activity. The smooth surfaces of the unmodified, non-textured, but otherwise identical films, exhibit low biocidal efficacy indicating less effective biocidal metal release properties. (¶ [0106]) For example, an article comprising 0.5 wt% of biocidal agent Irgaguard B5021 (Sample W) is over one hundred fold more effective with a textured surface than without. (Tables 5 and 6) All of the samples in Table 6 similarly demonstrate that texturizing a surface provides a one to two log improvement in biocidal efficacy. Appellants submit that the textured articles have unexpectedly improved biocidal activity compared to the nontextured articles, which approximately correspond to the nontextured coating in Podszun. In some examples, the improvement is greater than additive (a roughly 10-fold increase in surface roughness provides a 100-fold or 2-log improvement in biocidal efficacy).

The Examiner has stated that “in view of the substantially identical composition of Podszun and the composition as claimed the examiner has a reasonable basis to set forth a 102/3 rejection.” (Office Action dated April 25, 2006 at page 5) Appellants respectfully dispute the Examiner’s contention that Podszun teaches a substantially identical composition because Podszun fails to disclose a textured exterior surface. More broadly, Podszun is directed to coatings that reduce or eliminate the release of inorganic biocidal agents while the present invention is directed to articles that promote the release of inorganic biocidal agents.

Appellants submit that Podszun is expressly directed to an article that limits, rather than promotes, biocidal metal release. Further, Podszun fails to teach or suggest an article having a textured exterior surface, the specific claimed biocidal metal release properties, or the killing of *E. coli* or *Staphylococcus aureus*. Podszun is directed to antifouling coatings that are applied to articles in contact with seawater to prevent infestation (i.e., attachment and growth) of algae and other marine organisms. (Abstract, Col. 1, ll. 57-59) The coatings disclosed by Podszun prevent infestation of articles, such as boat hulls, by killing marine organisms that attempt to directly attach to the treated hull without harming other organisms that are present in the harbor. Podszun achieves this goal by, *inter alia*, eliminating or reducing the release of biocidal agents

into the seawater. Podszun, therefore, discloses a coating that limits the release of metals when contacted with a solution (e.g., sea water), which is directly contrary to the presently claimed article that provides effective release of biocidal metal when contacted with a solution. Because Podszun fails to disclose a textured exterior surface as well as the specific biocidal metal release properties related to such a surface, Appellants dispute that Podszun discloses a substantially identical composition. Because Podszun fails to teach all claim limitations, Podszun neither anticipates nor renders obvious the present claims.

The Examiner appears to have withdrawn his earlier statement that “the teachings of Podszun et al. generically includes all surfaces, such as smooth and textured surfaces, as well as the textured composition as claimed.” (Office Action dated April 25, 2006 at page 5) More recently, the Examiner has stated a “‘textured exterior surface’ means any non-smooth surfaces [sic].” (Office Action dated July 28, 2006 at page 6) (emphasis in original) As their own lexicographers, Appellants have defined “textured” to refer to a modification of an exterior surface of a thermoplastic article to an extent effective to produce a desired level of biocidal activity. The Examiner appears to be using his own definition rather than the Appellants’ definition.

Appellants dispute that “textured” as defined in the present application means “rough” as that term is used in Podszun. Appellants had repeatedly stated that textured requires modification of the thermoplastic article. For example, the specification expressly discloses:

By texturizing the exterior surface of the article or multi-layered article, it is meant that the surface layer is roughened in a manner and to an extent effective to produce a desired level of biocidal activity.

(¶ [0017]) The specification further discloses:

An article may be formed by a suitable means and then texturized by mechanically or chemically abrading the exterior surface of the article.

(¶ [0087]) Similarly the Responses to the Office Actions have repeatedly stated that an additional modification is required to provide a textured surface. For example,

Applicants respectfully submit that at least a textured surface is not an inherent feature of an identical or substantially identical film because an additional modification is required to provide a textured surface.

(Office Action dated March 30, 2006 at page 8)

Here again, Appellants respectfully submit that the smooth surfaces provided by a

thermoplastic article must be modified to provide a textured surface. Further, the amount of texturing, for example as measured by an average surface roughness, may be selected to provide a desired level of biocidal activity. As disclosed in the present specification, an article may be formed by a suitable means and then texturized, for example, by mechanically or chemically abrading the exterior surface of the article. (§ [0087]) In one embodiment, the textured surface is provided by calendering rolls wherein the top roll and optionally the bottom roll comprise surface discontinuities or protrusions. (§ [0088]) In another embodiment, the protrusions have a length (Ra) of about 200 nanometers to about 20 micrometers. In yet another embodiment, the textured surface is provided by molding the article in a mold having surface discontinuities or protrusions that impart a textured surface. (§ [0089]) In one embodiment, the protrusions have a length (Ra) of about 50 nanometers to about 20 micrometers. Podszun, in contrast, completely fails to disclose modifying the smooth surface of the coating to provide a textured surface. Podszun necessarily also fails a textured surface that is effective to produce a desired level of biocidal activity.

As their own lexicographers, Appellants have clearly defined “textured” to refer to a modification of the exterior surface. Examiner’s contention that an article “comprising a rough surface property...can be considered ‘textured’” is therefore contrary to Appellant’s definition of “textured.” (Office Action dated July 28, 2006 at page 5) Podszun fails to disclose any modification of an exterior surface of a manufactured thermoplastic article. In fact, the rough surface in Example 6 appears to be inherent in the composition that did not include a microencapsulated biocidal agent. (Col. 9, ll. 55-67) Because Podszun fails to disclose a textured exterior surface, Podszun fails to teach or suggest all limitations and does not anticipate or render obvious the present claims.

In addition, the Examiner’s proposed modification of Podszun would render the coatings of Podszun unsuitable for their intended purpose. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); MPEP § 2143.01 (V). Appellants agree that the claims are not limited to the preferred embodiments. (Office Action dated July 28, 2006 at page 5) Here, however, because Podszun states that the rough surface in Example 6 is not in accordance with the invention, one of ordinary skill in the art would understand that the rough film of Example 6

does not work for its intended purpose. Yet the Examiner has used precisely this Example, that Podszun itself describes as being unsatisfactory for its intended purpose, as the basis for the most recent rejection. Appellants therefore submit that the Examiner has failed to establish a *prima facie* case of obviousness.

Finally, the Examiner has stated that Podszun “clearly indicate[s] that the active substances are visible to the naked eyes [sic].” (Office Action dated July 28, 2006 at page 5) It is unclear to Appellants why the Examiner believes that the macroscopic visibility of the active substance in Example 6 of Podszun to be significant since no such limitation is presently claimed. Further, the active substance in the Podszun example is a microencapsulated diuran and not an inorganic biocidal agent.

The Examiner appears to state that Podszun fails to disclose smooth surfaces. (Office Action dated July 28, 2006 at page 6) Appellants dispute that the teachings of Podszun fails to teach or suggest a smooth surface. Appellants respectfully submit that Podszun teaches a smooth surface and expressly teaches away from a textured surface because Podszun specifically states that a comparative example is “not in accordance with the invention” because “the surface of the coating was rough.” (Col. 5, ll. 55-67; Example 6) If a rough surface is not in accordance with the invention, then it follows that a smooth surface is in accordance with the invention.

Appellants further submit that Podszun also expressly discloses a coating having a smooth, non-textured surface rather than a textured surface. Specifically, Examples 4 and 5 of Podszun disclose dispersing a microencapsulated heavy-metal free biocide into a polymer solution. (Col. 9, ll. 18-52) With the aid of a doctor blade, the dispersion was applied to a metal plate coated with epoxy lacquer to provide a homogeneous coating. This coating is therefore a smooth coating and is not textured. Podszun also fails to disclose modifying the surface provided by the doctor blade to provide a textured surface. For at least these reasons, Podszun clearly discloses a smooth surface. Appellants therefore dispute the Examiner’s contention that Podszun is silent as to the smooth surfaces of the films in the Examples. (Office Action dated July 28, 2006 at page 6) Appellants further dispute the Examiner’s earlier contention that the teaching of Podszun generically includes textured surfaces. (Office Action dated April 25, 2006 at page 5)

Because the claimed exterior textured surface is completely missing from Podszun, Appellants submit that Podszun fails to teach all elements of the claims. Podszun therefore cannot anticipate nor render obvious the present claims.

Appellants also respectfully submit that the Examiner has erred by stating that texturing an exterior surface by mechanical or chemical abrasion is not claimed. (Office Action dated July 28, 2006 at page 6) First, Appellants submit that “textured” as used in Claim 1 is defined to require modification of the exterior surface provided by a thermoplastic article. In addition, Claim 18 specifically claims “the texturing is provided by chemical or mechanical abrasion of at least a portion of the outer surface.”

Appellants also respectfully submit that the Examiner’s contention that Podszun may form a non-smooth surface because of local differences in evaporation rates or biocidal agents phasing out of solution is not relevant because it ignores Appellants’ definition of “textured.” (Office Action dated July 28, 2006 at page 6) Podszun fails to disclose modifying an exterior surface to provide a textured surface. The Examiner’s hypothetical phenomena that may occur during the manufacture of thermoplastic articles are not modifications to an exterior surface of an article, and therefore would not read on the presently claimed textured exterior surface. Further, the comparative examples labeled “as such” in the present application approximately correspond to the coatings disclosed in Podszun. In fact, the Examiner has repeatedly relied on this correspondence as the basis for the statement that Podszun discloses a substantially identical composition. (Office Action dated October 4, 2005 at page 5; Office Action dated April 25, 2006 at pp. 4-5; Office Action dated July 28, 2006 at page 4) Therefore, the cited phenomena that may occur during the manufacture of a thermoplastic article comprising an inorganic biocidal agent would occur in the manufacture of both the Podszun coatings and the examples labeled “as such” in the present application. Arguably, these phenomena may result in “non-smooth” surfaces but because they do not modify the manufactured thermoplastic article, these phenomena cannot result in a textured surface that provides effective release of biocidal agents as required by the present claims.

In addition, the smooth surfaces of the non-textured articles demonstrably do not possess the effective biocidal agent release nor the increased biocidal activity. As described in the Examples of the present application, the “as-such” examples of the present application do not have effective biocidal metal release and do not have improved biocidal activity despite



potentially having “non-smooth” surfaces due to evaporation of solvent, phasing out of solution, or any other by-product of the manufacture of a thermoplastic article. Appellants have demonstrated, and the Examiner does not dispute, that the textured articles provide improved biocidal activity that is, in some examples, one to two logs greater than the “as such” examples.

Finally, Examiner states that “[a]ny way, Podszun et al. are silent that the films obtained in the working examples are smooth.” Appellants respectfully submit that Podszun does, in fact, disclose that the working examples have smooth surfaces. Further, Appellants respectfully submit that the burden is on the Examiner to demonstrate a *prima facie* case of obviousness based on what is disclosed in the prior art. It is not Appellants’ burden to disprove that Podszun discloses textured surfaces when the prior art allegedly fails to disclose smooth surfaces. Podszun fails to disclose a textured surface either expressly or inherently because Podszun fails to disclose modification of an exterior surface. Further, Podszun is directed to retarding rather than promoting the release of biocidal metals. Therefore Podszun would not disclose a textured surface, which would increase the release of biocidal metals.

The Examiner has further stated that the unexpectedly improved biocidal metal release properties of a textured article are “expected properties since a smooth surface has reduced surface area.” (Office Action dated April 25, 2006 at page 5; Office Action dated July 28, 2006 at page 6) Appellants respectfully submit that this conclusory statement simply states what an artisan may try to do because Podszun fails to provide motivation or a reasonable expectation of success of improving biocidal metal release. Podszun fails to disclose a textured surface or the improved biocidal metal release resulting therefrom.

Obviousness is not based upon what an artisan could do or what an artisan may try, but is based upon what an artisan would be motivated to do with an expectation of success. “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, No. 04-1616 (Fed. Cir. March 22, 2006) (*citing In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002)); *In re Rouffett*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998). “When the Board does not explain the motivation, or the suggestion or teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, [it is] infer[ed] that the Board used hindsight to conclude that the invention was obvious.” *Id.* Additionally, “[a]lthough the suggestion to combine references may flow from the nature of

the problem, “[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.”” (internal citation omitted) *Id.*, quoting *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881 (Fed. Cir. 1998); *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992).

Appellants respectfully submit that Podszun fails to provide motivation or a reasonable expectation of success to texturize a surface to improve biocidal metal release. Podszun teaches a smooth surface; Podszun expressly states that a rough surface is not in accordance with the invention; and Podszun is directed to a coating that reduces biocidal metal release into the ocean. For at least these reasons, Podszun fails to provide motivation or a reasonable expectation of success to texturize a surface to improve biocidal metal release. Appellants also respectfully submit that the Examiner’s conclusory statement about what would be obvious to try is inadequate to provide motivation or a reasonable expectation of success. Therefore the Examiner has failed to establish a *prima facie* case of obviousness.

Even where a *prima facie* case of obviousness exists, obviousness may be rebutted by a showing of “unexpected results,” i.e., comparative test data showing that the claimed invention possesses unexpectedly improved properties, or properties that the prior art does not have. *In re Dillon*, 919 F.2d 688, 692-93, 16 U.S.P.Q.2d 1897, 1901 (Fed. Cir. 1990) (emphasis added). The results must be of both statistical and practical significance. *Ex parte C*, 27 U.S.P.Q.2d 1492, 1497 (Bd. Pat. App. & Int. 1993).

Objective evidence or secondary considerations such as unexpected results are relevant to the issue of obviousness and must be considered in every case in which they are present. MPEP § 2141(III). Examiners must consider comparative data in the specification, which is intended to illustrate the claimed invention in reaching a conclusion with regard to the obviousness of the claims. *In re Margolis*, 785 F.2d 1029, 228 USPQ 940 (Fed. Cir. 1986); MPEP § 716.01(a). Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art, which is commensurate in scope with the claims. *See In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); MPEP § 716.02(b) - § 716.02(e).

Appellants respectfully submit that the Examiner has repeatedly failed to consider the comparative data in the specification that demonstrate the unexpected results obtained by the

present composition.<sup>1</sup> Instead the Examiner has made a conclusory statement that the unexpected results are “expected” based on an obvious to try standard. (Office Action dated April 26, 2006 at page 4; Office Action dated July 28, 2006 at page 6) The Examples of the present application disclose using light friction to provide textured articles that had roughly a 10-fold greater average roughness than the “As such” un-modified samples. (§ [0098]; Table 2) The textured articles with greater average roughness provide increased biocidal metal release as compared to the “As such” samples. Samples B, C, E, and F all show significantly increased silver release when the surfaces are texturized. (§ [0099]; Table 2) All the samples in Table 6 similarly demonstrate that texturizing a surface provides a one to two log improvement in biocidal efficacy. Appellants submit that the textured articles have unexpectedly improved biocidal activity compared to the nontextured articles, which approximately correspond to the nontextured coating in Podszun. In some examples, the improvement is greater than additive (a roughly 10-fold increase in surface roughness provides a 100-fold or 2-log improvement in biocidal efficacy). Appellants respectfully submit that these unexpected results are not present in Podszun and would further rebut a *prima facie* case of obviousness, if it existed.

In summary, Claims 1, 2, and 4-19 are patentable over the art of record. For the reasons cited above, Appellants respectfully submit that all of the claims are allowable and the application is in condition for allowance. Appellants respectfully request reversal of the outstanding rejections and allowance of this application.

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<sup>1</sup> In the Advisory Action, the Examiner stated that a “102-3 rejection is not a 103 rejection either.” (Advisory Action dated April 26, 2006 at page 3) Although this statement is unclear, it is Appellants’ understanding that the Examiner is stating that a rejection under § 102(b), or in the alternative, under § 103(a), does not have to meet the burden of proof for either § 102(b) or § 103(a). To the extent that this is the Examiner’s contention, Appellants respectfully submit that this is a clearly erroneous statement of law. The Examiner must meet his burden to establish either anticipation or, in the alternative, obviousness. An obviousness inquiry must include an analysis of comparative data submitted by the Appellant.

In the event the Examiner has any queries regarding the submitted arguments, the undersigned respectfully requests the courtesy of a telephone conference to discuss any matters in need of attention.

If there are any additional charges with respect to this Appeal Brief, please charge them to Deposit Account No. 50-3621.

Respectfully submitted,

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## VIII. CLAIMS APPENDIX

1. (Previously Presented) An article comprising a thermoplastic composition comprising a thermoplastic resin and an inorganic biocidal agent,  
wherein the thermoplastic resin comprises a homopolymer or a copolymer of a polycarbonate, a polyester, a polyacrylate, a polyamide, a polyetherimide, a polyphenylene ether, or a combination comprising one or more of the foregoing resins,  
wherein the article comprises a textured exterior surface over at least a portion thereof, wherein the textured exterior surface comprises the thermoplastic resin and the biocidal inorganic agent;  
wherein the article has a biocidal metal release factor of greater than 2.5 from an exterior surface,  
wherein biocidal metal release in parts per billion is measured by contacting 5 cm by 5 cm of the exterior surface with 40 milliliters of 0.8% weight/volume of sodium nitrate for 24 hours at 25° C to form a test solution, and measuring an amount of biocidal metal in the test solution in parts per billion, and  
wherein the biocidal metal release factor is the amount of biocidal metal in the test solution in parts per billion divided by a product of a weight percent of the inorganic biocidal agent based on the total weight of the article and the weight percent of biocidal metal in the inorganic biocidal agent.
2. (Original) The article of Claim 1, wherein the biocidal metal release factor is greater than or equal to about 3.
3. (Canceled)
4. (Original) The article of Claim 1, wherein the inorganic biocidal agent is a biocidal zeolite.
5. (Original) The article of Claim 1, wherein the exterior surface is in the form of a layer disposed over at least a portion of the article.

6. (Original) An article comprising a textured exterior surface covering at least a portion thereof, wherein the textured exterior surface comprises an inorganic biocidal agent and a first thermoplastic resin.

7. (Original) The article of Claim 6, wherein the first thermoplastic resin, is a homopolymer or a copolymer of a polycarbonate, a polyester, a polyacrylate, a polyamide, a polyetherimide, a polyphenylene ether, or a combination comprising one or more of the foregoing resins.

8. (Original) The article of Claim 6, wherein the texturing is effective to produce biocidal activity.

9. (Original) The article of Claim 6, wherein texturing is effective to kill at least 50% of a pathogenic organism in contact with the exterior surface over a period of 24 hours at 25°C.

10. (Original) The article of Claim 6, wherein the textured exterior surface is in the form of a layer disposed on at least a portion of the article.

11. (Original) The article of Claim 10, wherein at least a portion of the article other than the textured exterior surface comprises a second thermoplastic resin that is the same as or different than the first thermoplastic resin.

12. (Original) The article of Claim 11, wherein at least a portion of the article other than the textured exterior surface comprises an inorganic biocidal agent that is the same as or different than the inorganic biocidal agent in the textured exterior surface.

13. (Previously Presented) The article of Claim 8, wherein the biocidal activity is an anti-microbial efficacy that is greater than or equal to about 70% killing of an E. coli culture or a Staphylococcus aureus culture, measured by contacting the exterior textured surface of the article

with the *E. coli* culture or the *Staphylococcus aureus* culture, incubating the article for 24 hours at 37°C, and determining the percentage of killing of the *E. coli* culture or the *Staphylococcus aureus* culture.

14. (Original) The article of Claim 6, wherein the inorganic biocidal agent comprises a biocidal metal comprising silver, gold, copper, zinc, mercury, tin, lead, bismuth, cadmium, chromium, thallium, or a combination comprising one or more of the foregoing biocidal metals.

15. (Original) The article of Claim 14, wherein the inorganic biocidal agent is in the form of a metal salt, a hydroxyapatite, a zirconium phosphate, or a zeolite comprising at least one of the biocidal metals, or a combination comprising one or more of the foregoing forms.

16. (Original) The article of Claim 10, wherein the textured exterior surface layer has a thickness of about 5 micrometers to about 150 micrometers.

17. (Original) The article of Claim 6, in the form of a film, a sheet, or a multi-wall sheet.

18. (Original) The article of Claim 6, wherein the texturing is provided by chemical or mechanical abrasion of at least a portion of the outer surface.

19. (Previously Presented) The article of Claim 6, wherein the article reduces the growth of a pathogenic organism comprising *Bacillus cereus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptococcus faecalis*, *Salmonella gallinarum*, *Vibrio parahaemolyticus*, *Candida albicans*, *Streptococcus mutans*, *Legionella pneumophila*, *Fusobacterium*, *Aspergillus niger*, *Aureobasidium pullulans*, *Cheatomium globosum*, *Gliocladium virens*, *Penicillium funiculosum*, *Saccharomyces cerevisiae*, a Herpes simplex virus, a polio viruses, a hepatitis B virus, a hepatitis C virus, an influenza virus, a sendai virus, a sindbis virus, a vaccinia virus, a severe acute respiratory syndrome virus, or a combination comprising one or more of the foregoing organisms.

20. (Withdrawn) A method of making a textured article, comprising chemically or mechanically abrading an exterior surface of an article to form a textured exterior surface, wherein the exterior surface comprises an inorganic biocidal agent and a first thermoplastic resin, and wherein abrading results in an improvement in biocidal activity in the textured article compared to an untextured article.

21. (Withdrawn) A method of making a textured article, comprising calendering an article to provide a textured exterior surface over at least a portion of the article, wherein the surface of a roller in contact with the exterior surface of the article comprises surface discontinuities, and wherein the textured exterior surface of the article comprises an inorganic biocidal agent and a first thermoplastic resin.

22. (Withdrawn) A method of making a textured article, comprising molding an article to provide a textured exterior surface over at least a portion of the article, wherein the surface of a mold in contact with the exterior surface of the article comprises surface discontinuities, and wherein the textured exterior surface of the article comprises an inorganic biocidal agent and a first thermoplastic resin.

## **IX. EVIDENCE APPENDIX**

There is no evidence submitted pursuant to 37 C.F.R. §1.130, 37 C.F.R. §1.131, or 37 C.F.R. §1.132 or any other evidence entered by the Examiner and relied upon by the Appellant in this appeal, known to the Appellants, Appellants' legal representatives, or assignee.

## **X. RELATED PROCEEDING APPENDIX**

There are no other related appeals or interferences known to Appellants, Appellants' legal representatives, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.